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TEMPORARY PASTURES FOR FATTENING SPRING LAMBS

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Temporary Pastures for Fattening Spring Lambs

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Kentucky possesses an enviable reputation as a state in which spring lambs of quality are produced. It is the usual practis to fatten these lambs on their mothers' milk, bluegrass

Fig. 1. Ewes and lambs on bluegrass pasture.

pasture and sometimes a little grain and sell them at weaning time. If for any reason the bluegrass fails to produce sufficient pasture for sheep and lambs, then a temporary pasture is particularly valuable as a supplement to the permanent pasture. Temporary pastures can be widely used in those parts of the state where bluegrass pasture is not available. These pastures consist of such forages as rape, rape and oats, rye, vetch, barley, clover, soybeans and other cultivated crops. It is the belief of Kentucky sheepmen that the most economical gains are produced when plenty of good pasture is used.

This circular summarizes the work on the use of temporary pastures for spring lambs completed to date on the Experiment Station Farm at Lexington.

Part I

RAPE AND OATS PASTURE vs. BLUEGRASS PASTURE

Three trials were conducted to determine the relative gains made by lambs on a temporary pasture of rape and oats and lambs on a permanent bluegrass pasture.

FIRST TRIAL

June 2, 1924, to June 30, 1924 (28 Days)

Forty-three spring lambs were divided into two lots. Lot I consisted of 24 lambs, on bluegrass pasture. Lot II consisted of 19 lambs, on rape and oats pasture. For six days prior to the beginning of the test the lambs were grazed on their respective forage plots in order that they might become accustomed to the new feed.

CONDITION OF THE PASTURES

The rape and oats were sown about May 1 at the rate of 10 pounds of rape and 2 bushels of oats to the acre. At the beginning of the trial the bluegrass was in excellent growing condition. It had been pastured and had not been permitted to head out. According to Henry and Morrison,* bluegrass of this kind should contain 3.7 per cent digestible protein, 10.4 per cent digestible carbohydrates, and .8 per cent digestible fat. The rape and oats were ten to twelve inches high. Rape, according to Henry and Morrison,* should contain 2.6 per cent digestible protein, 10 per cent digestible carbohydrates, and .3 per cent digestible fat. Oats, when 8 inches high, should contain 3.4 per cent digestible protein, 4.1 per cent digestible carbohydrates and .5 per cent digestible fat. As the oats mature the protein should decrease and the carbohydrates increase. Rains during the latter part of June kept the pastures rank.

*Henry and Morrison, "Feeds and Feeding."

GRAIN

The following grain mixture was fed to all lambs:

Crushed oats	10 pounds
Wheat bran	2 pounds
Pea-size linseed oil meal	1 pound

Grain was fed to Lot I at the rate of .83 pound per head per day and to Lot II at the rate of .9 pound. The ewes received grain once daily.

METHOD OF HANDLING

Because of the danger from dogs it was necessary to keep the ewes and their lambs in the barn at night. The ewes and lambs were permitted to be together at all times so that the lambs could nurse whenever they desired to do so. During the day they were turned on pasture. Grain was fed to the lambs twice a day. The ewes and lambs in Lot I had access to a twenty-acre field of bluegrass. Those in Lot II had access to a lot of only one acre of rape and oats.

DESCRIPTION OF THE LAMBS

All lambs were ewes and wethers. There were eleven purebred Hampshires, eight purebred Southdowns, five purebred Shropshires, ten purebred Cheviots, and the remainder were grades and crossbreds. Each lot contained approximately the same number of lambs of each breed and sex. All of the lambs were dropt in February and March.

TABLE I—Summary, First Trial

	Lot I Bluegrass pasture	Lot II Rape and Oats pasture
Number of lambs	24	19
Average wt. per lamb, June 2	54.5 lbs.	53.0 lbs.
Average wt. per lamb, June 30	66.5 lbs.	65.5 lbs.
Total gain per lamb	12.0 lbs.	12.5 lbs.
Average daily gain per lamb	.43 lbs.	.45 lbs.
Total grain consumed per lamb	23.3 lbs.	25.2 lbs.
Average daily grain ration per lamb	.83 lbs.	.9 lbs.
Grain consumed per lb. of gain	1.94 lbs.	2.01 lbs.

Table I shows that there was practically no difference in the gains due to the kind of pasture. While the lambs on rape and oats gained an average of .02 pound per head per day more than the lambs on bluegrass pasture, at the same time each lamb consumed .07 pound more grain per day and .07 pound more grain for each pound of gain. One lamb in Lot I went lame on June 25 and did not do well during the next five days. At the close of the experiment the lambs were weaned.

Fig. 2. A temporary pasture of rape and oats.

SECOND TRIAL

July 6, 1925, to August 3, 1925 (28 Days)

This trial differed slightly from the first trial in that the lambs were sheared and the trial was begun one week after weaning instead of before weaning. Twenty-five lambs were divided into three lots. Lot I, on bluegrass, consisted of nine sheared lambs; Lot II, on rape and oats, consisted of nine sheared lambs; and Lot III, on rape and oats, consisted of seven wooled lambs. All were treated with bluestone for stomach worms before the beginning of the trial.

CONDITION OF THE PASTURES

The rape and oats were sown about the middle of May. The pastures were in excellent condition thruout the test.

GRAIN

The same grain mixture was fed as in the first test. The lambs were fed morning and evening at the rate of half a pound per head per day.

DESCRIPTION OF THE LAMBS

All lambs were ewes and wethers. There were eight purebred Cheviots, six purebred Southdowns, five purebred Shropshires, five purebred Hampshires, and the remainder were crossbreds. Lot I contained all ewe lambs, Lot II all wether lambs, and Lot III both ewes and wethers, with approximately an even division of the breeds between the three lots. The lambs in Lots II and III were slightly older than those in Lot I, tho all the lambs were dropt between the middle of January and the middle of March.

METHOD OF HANDLING

The lambs were kept where they could not see the ewes. They were permitted to graze during the day and put into the barn at night.

TABLE II—Summary, Second Trial

	Lot I Bluegrass pasture	Lot II Rape and Oats pasture	Lot III Rape and Oats pasture
Number of lambs	9 (sheared)	9 (sheared)	7 (wooled)
Average wt. per lamb, July 6	66.5 lbs.	79.6 lbs.	80.0 lbs.
Average wt. per lamb, August 3	70.0 lbs.	83.3 lbs.	86.3 lbs.
Total gain per lamb	3.5 lbs.	3.7 lbs.	6.3 lbs.
Average daily gain per lamb	.12 lbs.	.13 lbs.	.22 lbs.
Total grain consumed per lamb	14.0 lbs.	14.0 lbs.	14.0 lbs.
Average daily grain ration per lamb	.5 lbs.	.5 lbs.	.5 lbs.
Grain consumed per lb. of gain	4.0 lbs.	3.8 lbs.	2.2 lbs.

Table II shows that there was less difference in the average daily gain of Lots I and II than was shown in Table I. This difference was only .01 pound in favor of the rape and oats. In this trial, the grain consumption was the same in both lots. For each pound of gain .2 pound more grain was required in Lot I than in Lot II. Thus the evidence is practically the same in favor of rape and oats as it was in the first experiment.

The 18 lambs included in Lots I and II were sheared before the beginning of the experiment. A third lot, consisting of 7 wooled ewe and wether lambs, was fed at the same time. The average initial weight of these 7 lambs was 80 pounds and the average final weight was 86.3 pounds, making an average gain of 6.3 pounds per lamb. The average daily gain per lamb was .22 pound, and only 2.2 pounds of grain were required for each pound of gain. If these 7 wooled lambs in Lot III were added to the 9 sheared lambs in Lot II, the difference would be more pronounced in favor of rape and oats, as the 16 lambs made an average gain of 4.8 pounds, or 1.3 pounds more than the lambs on bluegrass pasture.

THIRD TRIAL

June 17, 1926 to July 15, 1926 (28 Days)

This trial was conducted in the same manner as the first trial. The comparison was made while the lambs were still nursing their dams. Twenty-eight lambs were divided into two lots, with approximately an equal division of ewes and wethers between the two lots. Lot I, on bluegrass, consisted of fourteen lambs. Lot II, on rape and oats, consisted of fourteen lambs.

CONDITION OF THE PASTURES

The rape and oats were sown about the first of May. The pastures were in excellent condition thruout the test.

GRAIN

The grain mixture fed was as follows:

Crushed oats	8 pounds
Wheat bran	2 pounds
Pea-size linseed oil meal	1 pound

The lambs were fed twice daily. Grain was fed to Lot I at the rate of .6 pound per head per day and to Lot II at the rate of .5 pound. The lambs in Lot I were fed the heavier ration because they were larger than those in Lot II and the grain was fed in proportion to weight. The ewes received grain once daily.

DESCRIPTION OF THE LAMBS

All lambs were ewes and wethers. There were eight purebred Cheviots, four purebred Southdowns, eight purebred Hampshires, and the remainder were crossbreds. Six of the lambs in Lot I were Hampshires, while Lot II contained only one Hampshire and one Hampshire-Cheviot cross. The lambs in Lot I averaged 3 weeks older than the lambs in Lot II.

TABLE III—Summary, Third Trial

	Lot I Bluegrass pasture	Lot II Rape and Oats pasture
Number of lambs	14	14
Average age of lambs	14 weeks	11 weeks
Average wt. per lamb, June 17	63.4 lbs.	47.3 lbs.
Average wt. per lamb, July 15	71.0 lbs.	57.5 lbs.
Total gain per lamb	7.6 lbs.	10.2 lbs.
Average daily gain per lamb	.27 lbs.	.36 lbs.
Total grain consumed per lamb	17.0 lbs.	14.0 lbs.
Average daily grain ration per lamb	.60 lbs.	.50 lbs.
Grain consumed per pound of gain	2.23 lbs.	1.37 lbs.

Table III shows a greater difference in the average daily gain per lamb in favor of rape and oats than was shown in the first and second trials. The grain ration in Lot II appears to be lighter than that in Lot I, but a comparison of the weights of the lambs and the amounts of grain fed per day shows that the proportion is almost the same. In other words, the lambs in each lot received approximately the same amount of grain per pound of live weight. The lambs in Lot I weighed more than

the lambs in Lot II because of the greater number of Hampshire lambs in Lot I and because they averaged slightly older than those in Lot II.

If the results of this trial were to be considered without reference to either the first or the second trial, the larger gains made by the lambs in Lot II might be attributed to the fact that they were slightly younger and therefore would be expected to make more rapid gains. However, there are two arguments against this conclusion. One is that Hampshires, as a breed, generally gain more rapidly than lambs of the other breeds represented. The other is that reference to Table II shows that even when the lambs on rape and oats were older and heavier at the beginning of the test and received less grain, they still gained slightly more than the lambs on bluegrass. This indicates that the difference in gain was due primarily to the kind of pasture.

SUMMARY OF THE TRIALS

The results obtained in the three trials are summarized in Table IV.

TABLE IV—Summary of the Trials

	Lot I Bluegrass pasture	Lots II and III Rape and Oats pasture
Number of lambs	47	49
Average initial weight per lamb	59.4 lbs.	60.1 lbs.
Average final weight per lamb	68.5 lbs.	69.4 lbs.
Average total gain per lamb	9.1 lbs.	9.3 lbs.
Average daily gain per lamb	.32 lbs.	.33 lbs.
Total grain consumed per lamb	19.6 lbs.	18.3 lbs.
Average daily grain ration per lamb	.7 lbs.	.64 lbs.
Pounds grain consumed per pound of gain	2.15 lbs.	1.96 lbs.

These trials were not designed to determine the value of an acre of each kind of pasture; consequently, the results presented deal only with the value of the forage as determined by the gains

of the lambs in weight. No difference was noted with reference to stomach worm infestation. The bluestone treatment (as recommended in Kentucky Extension Circular 152) was given each year, before the beginning of the grazing period, and all

Fig. 3. Lambs grazing bluegrass that has headed out.

lambs came thru in good shape. This indicates that by proper drenching stomach worms can be controlled on either temporary or permanent pastures.

A study of Table IV shows a very slight advantage in favor of rape and oats pasture. The lambs gained more and consumed less grain. Because of the fact that the number of lambs and the weights of the lambs varied from year to year in each of the three trials, the weighted average gives a difference of only .2 pound gain in favor of the lambs on rape and oats, whereas in each experiment the difference was actually greater than this. Table V summarizes the gains made.

TABLE V—Summary of Gains

	Lot I Bluegrass pasture	Lots II and III Rape and Oats pasture
Number of lambs	47	49
Average gain per lamb, 1924	12.0 lbs.	12.5 lbs.
Average gain per lamb, 1925	3.5 lbs.	4.8 lbs.
Average gain per lamb, 1926	7.6 lbs.	10.2 lbs.

Table V shows that the lambs on rape and oats gained .5 pound per head more in 1924 than the lambs on bluegrass; 1.3 pounds more in 1925; and 2.6 pounds more in 1926, in a fattening period of 28 days. The average of these three differences gives a difference of 1.47 pounds per lamb in favor of rape and oats pasture. Table V, then, shows a more distinct advantage in favor of rape and oats pasture than was shown in Table IV.

No cases of bloat occurred in any of the lambs in these experiments.

Part II.

BLUEGRASS PASTURE vs. RAPE PASTURE*

This trial was conducted from June 20, 1917 to July 31, 1917, inclusive, a period of 42 days.

OBJECT

The object of this trial was to determine the relative gains made by lambs on bluegrass pasture and lambs on a temporary pasture of rape.

METHOD OF PROCEDURE

Twenty spring lambs were divided into two lots of ten lambs each. Lot I was grazed on bluegrass pasture; Lot II on rape pasture. Each pasture plot was one acre in size. The lambs were kept in the barn at night with their dams. During the day they were separated from the ewes and were turned on pasture. They were fed grain twice a day. At the beginning of the trial the lambs were weighed on three successive days, the average weight being taken as the initial weight. Weights were taken at intervals of two weeks during the test.

CONDITION OF THE PASTURES

At the beginning of the trial the acre of bluegrass was in good condition. It had not been pastured previously that year.

*Test conducted by L. B. Mann, formerly of the Department of Animal Husbandry.

By the middle of July the dry weather had caused the bluegrass to become short and brown. Rains during the following week caused the bluegrass to begin growing again. According to Henry and Morrison,** bluegrass of this kind should contain 1.9 per cent digestible protein, 21.9 per cent digestible carbohydrates, and .7 per cent digestible fat. The analysis of rape is given on page 38.

The rape was sown about the first of May. At the beginning of the test it was 10 to 14 inches high. At first the lambs

Fig. 4. Rape pasture.

did not eat it very well. By the middle of July the dry weather had caused the rape to turn brown and yellow. During the rainy week which followed the rape began to grow again. There were no cases of bloat.

GRAIN

The following grain mixture was fed to all the lambs:

Oats	2 pounds
Wheat bran	1 pound

During the first 9 days grain was fed at the rate of 1 pound per lamb per day. On the tenth day this was reduced to ½ pound and on July 17 it was increased to ¾ pound.

**Henry and Morrison, "Feeds and Feeding."

DESCRIPTION OF THE LAMBS

All lambs were ewes and wethers. In each lot there were five mountain lambs and five lambs by a Hampshire ram and out of mountain ewes.

TABLE VI—Summary of the Trial

	Lot I Bluegrass pasture	Lot II Rape pasture
Number of lambs	10	10
Average wt. per lamb, June 20	64.1 lbs.	59.4 lbs.
Average wt. per lamb, July 3	70.9 lbs.	63.5 lbs.
Average wt. per lamb, July 17	73.1 lbs.	68.9 lbs.
Average wt. per lamb, July 31	75.0 lbs.	71.4 lbs.
Total gain per lamb	10.9 lbs.	12.0 lbs.
Average daily gain per lamb	.26 lbs.	.29 lbs.
Total grain consumed per lamb	29.0 lbs.	29.0 lbs.
Average daily grain ration per lamb	.69 lbs.	.69 lbs.
Pounds grain consumed per pound of gain	2.66 lbs.	2.42 lbs.

A study of Table VI shows a distinct advantage in favor of rape pasture. The lambs gained more on the same grain ration. The greatest gain per lamb in Lot I occurred during the first two weeks and the smallest gain occurred during the last two weeks when the pasture was affected by the dry weather. In Lot II the greatest gain occurred during the second two weeks, due to the fact that the lambs failed to eat much of the rape when first started on the test. This probably affected the results of the trial. The smallest gain was made during the last two weeks, a dry period.

SUMMARY AND CONCLUSIONS

1. These trials show that when lambs are given free access to pastures they can be expected to gain as rapidly on a temporary pasture of rape or of rape and oats as they will on a per-

manent pasture of bluegrass. There was no significant difference either way, tho the lambs on the temporary pastures gained slightly more in each of the four trials than did the lambs on bluegrass.

2. The results of these trials indicate that temporary pastures of rape or of rape and oats would be particularly valuable in an intensive system of sheep production where only a small land area is available; or in those sections where permanent pastures of bluegrass cannot be produced; or as a supplement to permanent bluegrass pastures.

3. With plenty of good bluegrass available the small increase in gains produced by the temporary pastures would not justify the additional cost necessary to keep the land in cultivation for the production of temporary crops.

4. In these trials it was shown that stomach worms can be controlled on either permanent or temporary pastures by drenching with copper sulfate. These results check with the results obtained during the past ten years with the Experiment Station flock, during which period about 100 sheep have been kept on 20 acres of permanent pasture and 3 acres of temporary pasture. During this time not one sheep or lamb had been lost from stomach worm infestation.

INDEX

Bulletins

	Page
Allen, H. R., and others, Bulletin 282, by	255
Analyses of Commercial Fertilizers, Bulletin 282, on	255
Anderson, W. A., Jr., and others, Bulletin 279, by	103
Averitt, S. D. and S. C. Jones, Bulletin 277, by	1
Bulletins	
277. Soils of the Purchase Region of Kentucky	1
278. Marketing Kentucky Livestock	41
279. Commercial Feeding Stuffs in Kentucky in 1926	103
280. Observations and Experiments on the Control of True Tobacco Mosaic	143
281. Tobacco Frenching—a Nitrogen Deficiency Disease	175
282. Analyses of Commercial Fertilizers	255
Commercial Feeding Stuffs in Kentucky in 1926, Bulletin 279, on	103
Commercial Fertilizers, Bulletin 282, on	255
Curtis, H. E., and others, Bulletin 282, by	255
Experiments and Observations on the Control of True Tobacco Mosaic, Bulletin 280, on	143
Feeding Stuffs, Commercial, Bulletin 279, on	103
Fertilizers, Commercial, Bulletin 282, on	255
Frenching of Tobacco, Bulletin 281, on	175
Gault, Lelah and others, Bulletin 282, by	255
Johnson, E. C., Bulletin 278, by	41
Johnson, E. M., and W. D. Valleau, Bulletin 280, by	143
Johnson, E. M., and W. D. Valleau, Bulletin 281, by	175
Jones, S. C., and S. D. Averitt, Bulletin 277, by	1
Livestock, Marketing of, Bulletin 278, on	41
Marketing Kentucky Livestock, Bulletin 278, on	41
Mosaic Tobacco, Observations and Experiments on the Control of	143
Observations and Experiments on the Control of True Tobacco Mosaic, Bulletin 280, on	143
Purchase Region of Kentucky, Soils of, Bulletin 277, on	1
Soils of the Purchase Region of Kentucky, Bulletin 277, on	1
Spears, H. D., and others, Bulletin 279, by	103
Terrell, W. G., and others, Bulletin 279, by	103
Tobacco Frenching—a Nitrogen Deficiency Disease, Bulletin 281, on	175
Tobacco Mosaic Observations and Experiments on Control of	143
Turner, J. D., and others, Bulletin 279, by	103
Valleau, W. D., and E. M. Johnson, Bulletin 280, by	143
Valleau, W. D., and E. M. Johnson, Bulletin 281, by	175

Circulars

Page

Bean Beetle, Mexican, Circular 36, on 1
Beetle, Mexican Bean, Circular 36, on 1
Beetle, Striped Cucumber, Circular 37, on 19
Circulars.
36. The Mexican Bean Beetle, by H. H. Jewett 1
37. Striped Cucumber Beetle, by H. H. Jewett 19
38. Temporary Pastures for Fattening Spring Lambs 35
Cucumber Beetle, Striped, Circular 37, on 19
Fattening Spring Lambs, Temporary Pastures for, Circular 38, on 35
Horlacher, L. J., Circular 38, by 35
Jewett, H. H., Circular 36, by 1
Jewett, H. H., Circular 37, by 19
Lambs, Temporary Pastures for Fattening, Circular 38, on 35
Mexican Bean Beetle, Circular 36, on 1
Pastures, Temporary, for Fattening Spring Lambs, Circular 38, on 35
Striped Cucumber Beetle, Circular 37, on 19